

The Examiner states that it would have been obvious "to modify the system of Applicants' alleged admission of prior art by including a clip inserted onto a post, being pushed down the post towards a backing plate until the clip engages a stop surface of the post as taught in *Mori* to improve the contact pressure between the parts."

Applicants respectfully traverse these rejections for at least the following reasons. Applicants submit that the Examiner has failed to make a *prima facie* showing of obviousness. Instead, with respect to each limitation, the Examiner has impermissibly bootstrapped an obviousness rejection out of the deficient references. A mere discussion of the *similarities* between the references and the claimed invention does not suffice to support a rejection of claims that recite elements that are *not in the references*.

In order to establish a *prima facie* case of obviousness, three criteria must be met: i) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or to combine reference teachings; ii) there must be reasonable expectation of success; and iii) the prior art references must teach or suggest all the claim limitations. MPEP § 2143.

i) *Suggestion or motivation to combine*

With respect to the first criterion, there must be some suggestion or motivation to modify or combine the reference teachings. The mere fact that the references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

The Examiner has failed to establish a reason why the combination of *Mori* with the Applicants' alleged admission of prior art would have been obvious to one of ordinary skill in the art. At least for this reason, the rejections must be withdrawn.

Further, Applicants assert that there is no suggestion or motivation to combine the references. Applicants' alleged admission of prior art teaches a conventional interposer socket arrangement. An interposer socket is a socket through which a chip (*e.g.*, a microprocessor) is secured to a circuit board without the use of solder. Conventional interposer socket arrangements have four threaded posts on to which various components are disposed such as the circuit board, a heat sink and the like. Springs are then inserted over the posts and held captive by screws connected to the threaded posts. As depicted in Figure 1, an electronic component (10) is "sandwiched" between a heat sink (12) on one side and a base plate (14), circuit board (22) and socket (24) on the other side. Posts (20) extend up through the heat sink and are internally threaded on their upper end (26). Screws (16) compress springs (18) when threaded and tightened into threaded posts (20). The compression of the springs secures the component (10) to the socket (24) and circuit board (22).

Mori teaches a ZIP socket (50) for use in a burn-in test, which is characterized in that a contact element (24) and a fixed member (40) are displaced from their original positions in connection with the forward motion of the cover member (30) for upcharging an IC package (2) into the main socket body (21). Upon the return of the fixed member (40) and the contact element (24) to their respective initial positions, the leads (5a, 5b) of the IC package (2) are held between them, thereby carrying out the reliable fixing of the IC package (2).

A burn-in test is when a chip is "exercised" or powered while being subjected to relatively high external temperatures to precipitate early chip failure. Typically, a batch of chips is electrically powered in an oven where the temperature is maintained at approximately 150°C for an extended period of time, such as 1,000 hours.

Burn-in tests are limited to leaded chips (typically having hundreds of pins or less). During burn-in, a batch of chips may be mounted on a motherboard, and the chip leads are electrically connected to respective circuit elements on the motherboard by a suitable means, such as one or more flexible electrical connectors. Maintaining good electrical contact between the chip leads and the flexible electrical connector is very important. In order to maintain the necessary retention force, a system of levers, oversized latches, padded springs, pivots, rotating parts and/or covers are necessary in order to achieve the necessary mechanical advantage for the desired retention force.

In contrast, interposer sockets are limited to leadless, array-type chips, which may have numerous pins (*e.g.*, 1,000). In array-type chips, the connection features on the package and the board are properly prepared plated pads. Interposer sockets ensure good electrical connection between package and board by conforming to variables in smoothness and surface flatness of the integrated circuit package and circuit board. In such schemes, the package is maintained against the board with the interposer between by means of a pressure or backing plate and clamping screws after initially clamping the arrangement together using an external means, such as an arbor press.

In addition, a cooling device or heat sink is typically coupled to the interposer socket arrangement required to provide cooling of the entire electronic assembly. Many of the heat sinks have a substantial size and mass relative to the other components.

As will be appreciated, burn-in sockets (*Mori*) and interposer sockets differ significantly in their structure and function. Hence, one of ordinary skill in the art of interposer sockets would not be motivated to search out burn-in socket prior art. Applicants thus assert that Applicants' alleged admission of prior art and *Mori* are not combinable.

ii) Reasonable expectation of success

With respect to the second criterion, there must be some reasonable expectation of success. Because the references lack a suggestion or motivation to combine or modify, they also lack evidence suggesting that a combination or modification would be successful. Further, the combination the Examiner is proposing is not likely to be successful for reasons discussed below with respect to claim 2.

iii) Prior art references must teach or suggest all the claim limitations

With respect to the third criterion, the prior art references must teach or suggest all the claim limitations.

Claim 1

The Examiner relies on *Mori* to teach a system using a clip (5a, 5b) inserted onto a post (55), being pushed down the post (55) towards a backing plate (24c) until the clip (5a, 5b) engages a stop surface (24a, 24b) of the post (55).

However, Applicants assert that *Mori* does not teach a clip, post, or backing plate. In fact, what the Examiner has called a clip (5a, 5b) are actually leads of the IC (2), which contact the contact element (24) of socket (50). Leads (5a, 5b) provide an electrical connection from IC (2) to socket (50) at contact points (24a, 24b), and *are not pressed or inserted* into the contact points (24a, 24b), but are held in position between the contact member (24) and fixed member (40). Specifically, fixed member (40) sandwiches and holds the leads (5a, 5b) of the IC package (2) with the molding and IC chip against the contact points (24a, 24b) of the contact element (24).

The Examiner's post (55) is actually an erect part that runs upward through each of the through holes in cover member 30 and the Examiner's stop surface (24a, 24b) are actually contact points, which provide electrical connection between IC (2) and socket (50). Contact points (24a,

Serial No.: 09/981,511
Filed: October 17, 2002

24b) have been provided on an erect part (55) that extends upward up from the bent part (23) of the contact element (24) so that the size is reduced in the horizontal direction of the contact element (24) as a whole and, thus the size of the socket (50) becomes smaller.

The Examiner's backing plate (24c) is actually part of contact element (24) called a fixed terminal part (24c). Fixed terminal part (24c) is merely part of an electrical conduction path that originates from IC (2), is transferred at leads (5a, 5b) to contact member (24) at contact points (24a, 24b), and exits contact member (24) at lead part (24d) to a printed circuit board (not shown).

Applicants' claim 1 requires a backing plate, a post extending from the backing plate and having a stop surface, and a clip which, when inserted onto the post, engages the stop surface of the post. Because *Mori* fails to teach these elements, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 1 and its dependent claims.

Claims 2 and 4

With regard to claims 2 and 4, the Examiner asserts that *Mori* discloses the post (55) having an upper end distal from the backing plate (24c) and the clip (5a, 5b) for each post (55) is pushed down over the upper end until the clip (5a, 5b) engage the stop surface (24a, 24b) of the posts (55).

Because the Applicants' alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claim 1, the limitations of dependent claims 2 and 4 are patentable. The invention of claim 2 requires "a plurality of posts protruding from said backing plate." Even if fixed terminal part (24c) were a backing plate and erect part (55) were a post, *Mori's* arrangement does not allow for a plurality of posts protruding from the backing plate. In fact, if this limitation were attempted, *Mori's* arrangement would be rendered unfunctionable. It is well established that a

proposed modification cannot render the prior art unsatisfactory for its intended purpose and a the proposed modification cannot change the principle operation of a reference. MPEP § 2143.01

With regard to claim 4, Applicants require that "the clip for each post is pushed down over the upper end" of the post. In *Mori's* arrangement, even if leads (5a, 5b) were a clip and erect part (55) were a post, the clip is never pushed down over the upper end of the post. Rather, the clip is inserted into place (part of the IC) and the post is rotated in a counterclockwise fashion so that contact points (24a, 24b) contact the clip.

Claims 3 and 10

With regard to claims 3 and 10, the Examiner asserts that Applicants' alleged admission of prior art discloses four posts (20) protruding from the backing plate (14) and including stop surfaces (16), each post (20) having a spring (18) disposed thereon.

Because the Applicants' alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claim 1, the limitations of dependent claims 3 and 10 are patentable.

Claim 5

With regard to claim 5, the Examiner asserts that Applicants' alleged admission of prior art discloses the electronic component (10) and circuit board (22) being disposed between the backing plate (14) and the springs (18) and the electric component (10) is secured to the circuit board (22).

Applicants traverse this rejection and reiterate earlier arguments addressing the Examiner's failure to establish a *prima facie* case of obviousness. Specifically, because Applicants' alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claims 1 and 4, dependent claim 5 is patentable.

Claim 6

With regard to claim 6, the Examiner asserts that Applicants' alleged admission of prior art discloses the heat sink (12) also disposed between the backing plate (14) and the springs (18), the heat sink (12) further disposed between the electronic component (10) and the springs (18).

Applicants reiterate that because Applicants' alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claims 1 and 5 dependent claim 6 is patentable.

Claim 7

With regard to claim 7, the Examiner asserts that *Mori* discloses the upper ends of the post (55) comprise tips formed between the distal end of the post (55) and the stop surface (24a, 24b), each tip having a smaller cross section at its distal end than at the stop surface (24a, 24b).

Because the Applicants' alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claims 1 and 4, dependent claim 7 is patentable. With regard to claim 7, Applicants require that "each tip [at the upper end of the post] have a smaller cross section at its distal end than at the stop surface." In *Mori's* arrangement, even if erect part (55) were a post and contact points (24a, 24b) were a stop surface, the tip of the post does not have a smaller cross section at its distal end than at the stop surface. In fact, in *Mori*, the tip of the post and the distal end are the same part. Consequently, the tip of the post and the distal end have the same cross-section (clearly shown in Figure 2). This is in contrast with the requirements of claim 7 and Figures 4 and 5 of Applicants' drawings.

Claim 8

With regard to claim 8, the Examiner asserts that *Mori* discloses the upper end of the post (55) being substantially conically shaped.

Applicants traverse this rejection and refer to the argument made in response to the Examiner's rejection of claim 7. In regard to *Mori* disclosing a conically shaped upper end of a post, Applicants refer the Examiner to Figure 2 of *Mori*, where a substantially rectangular shaped upper end of a post is displayed. This rectangular shaped upper end of a post is the same upper end shown in *Mori*'s Figure 1, however the tip of the post is more visible. Once again, this is in contrast with Figures 4 and 5 of Applicants' drawings and claim 8.

Claim 9

With regard to claim 9, the Examiner asserts that *Mori* discloses the clip (5a, 5b) including protruding members, which define a hole in which the post (55) is inserted, the protruding members are pushed apart as the clip (5a, 5b) is pushed along the post (55) towards the stop surface (24a, 24b).

Because the Applicants' alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claim 1, dependent claim 9 is patentable. In response to *Mori* disclosing "protruding members which define a hole in which said post is inserted, said protruding members are pushed apart as said clip is pushed along said post towards the stop surface," Applicants request that the Examiner state what numerical component in *Mori* is a protruding member. Applicants do not believe *Mori* discloses the claimed "protruding member."

Claim 11

With regard to claim 11, it is the Examiner's position that Applicants' alleged admission of prior art discloses a component restraint computer system that is used to secure an electronic component (10) to a circuit board (22), and having a processor and heat sink (12); an output device coupled to the processor comprising: a backing plate (14); a plurality of springs (18); a plurality of posts (20) extending from the backing (flat) plate or surface (14) through the circuit board (22) and

Serial No.: 09/981,511
Filed: October 17, 2002

the springs (18), each post (20) having a stop surface (16); the electronic component (10) and heat sink (12) sandwiched between the circuit board (22) and the springs (18). In addition, it is the Examiner's position that *Mori* discloses a system using a clip (5a, 5b) inserted onto a post (55), being pushed down the post (55) towards a backing plate (24c) until the clip (5a, 5b) engages a stop surface (24a, 24b) of the post (55).

The Examiner states that it would have been obvious "to modify the system of Applicants' alleged admission of prior art by including a clip inserted onto a post, being pushed down the post towards a backing plate until the clip engages a stop surface of the post as taught in *Mori* to improve the contact pressure between the parts."

Applicants traverse this rejection and reiterate earlier arguments addressing the Examiner's failure to establish a *prima facie* case of obviousness with respect to claim 1. Specifically, Applicants assert that *Mori* does not teach a clip, post, or backing plate. Therefore, any reliance upon *Mori* to teach these elements is unfounded.

Claims 12 and 14

With regard to claims 12 and 14, the Examiner asserts that *Mori* discloses each clip (5a, 5b) including protruding members, which define a hole in which the post (55) is inserted, the protruding members are pushed apart as the clip (5a, 5b) is pushed down the post (55) towards the stop surface (24a, 24b).

Because the Applicants' alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claim 11, dependent claims 12 and 14 are patentable. With regard to claim 12, Applicants request that the Examiner state what numerical component in *Mori* is a protruding member.

With respect to claim 14, Applicants require each post to have “a plurality of stop surfaces for engaging said clips.” Even if contact points (24a, 24b) were a stop surface and leads (5a, 5b) were a clip, *Mori*’s arrangement does not disclose a plurality of stop surfaces. This is because the stop surface [or surfaces] are parallel to each other and contact the clip at the same time. This is in contrast with claim 12 and Figure 8 of Applicants’ drawings.

Claim 13

With regard to claim 13, the Examiner asserts that *Mori* discloses the post (55) having a distal end opposite the backing plate (24c) that includes a tip that has a cross section that increases from the distal end of the post (55) towards the stop surface (24a, 24b).

Because the Applicants’ alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claim 11, dependent claim 13 is patentable. In response to *Mori* disclosing “a tip that has a cross section that increases from the distal end of the post towards the stop surface,” Applicants reiterate the argument made in response to the Examiner’s rejection of claim 7.

Claim 15

With regard to claim 15, it is the Examiner’s position that Applicants’ alleged admission of prior art discloses a component restraint computer system that is used to secure an electronic component (10) to a circuit board (22), comprising: a flat plate (14); four clip retainer members (18); four posts extending from the flat plate (14) through the circuit board (22) and the clip retainer members (18), each post (20) having a stop surface (16). It is also the Examiner’s position that *Mori* discloses a system using a clip (5a, 5b) inserted onto a post (55, being pushed down the post (55) towards a backing plate (24c) until the clip (5a, 5b) engages a stop surface (24a, 24b) of the post (55).

The Examiner states that it would have been obvious to “modify the system of Applicants’ alleged admission of prior art by including a clip inserted onto a post, being pushed towards a backing plate until the clip engages a stop surface of the post as taught in *Mori* to improve contact pressure between the parts.”

Applicants respectfully traverse the Examiner’s rejection for the following reasons. Firstly, as stated in earlier arguments, Applicants’ alleged admission of prior art and *Mori* are not combinable. Secondly, *Mori* does not teach a clip, post, or backing plate. Thirdly, Applicants’ alleged admission of prior art does not teach four clip retainer members. In fact, what the Examiner has termed the “clip retainer members (18)” in this rejection are the same spring components that the Examiner has termed “a spring (18)” in previous and subsequent rejections. As is evident from Applicants’ specification, springs (18) do not retain the clips, but actually push against the clips. Therefore, Applicants assert that Applicants’ alleged admission of prior art does not teach clip retainer members.

Claim 16

With regard to claim 16, it is the Examiner’s position that Applicants’ alleged admission of prior art discloses a computer restraint system that is used to secure a device (10) to a circuit board (22), comprising: a backing surface (14); a plurality of posts (20) extending from the backing surface (14) through the circuit board (22), each post (20) having a stop surface (16). It is also the Examiner’s position that *Mori* discloses a system using a clip (5a, 5b) inserted onto a post (55), being pushed down the post (55) towards a backing surface (24c) until the clip (5a, 5b) engages a stop surface (24a, 24b) of the post (55).

The Examiner states that it would have been obvious to “modify the system of Applicants’ alleged admission of prior art by including a clip inserted onto a post, being pushed down the post

towards a backing surface until the clip engages a stop surface of the post as taught in *Mori* to improve contact pressure between the parts.”

Applicants respectfully traverse the Examiner’s rejection because Applicants’ alleged admission of prior art and *Mori* are not combinable. Additionally, even if Applicants’ alleged admission of prior art and *Mori* were combined, they would not yield Applicants invention because *Mori* fails to teach a clip, post, or backing surface. Therefore, Applicants assert that claim 16 is allowable over the references.

Claim 17

With regard to claim 17 the Examiner asserts that *Mori* discloses the post (55) having a tip at its distal end that has a cross sectional area that increases from the distal end of the post (55) towards the stop surface (24a, 24b).

Because the Applicants’ alleged admission of prior art and *Mori* are not combinable and do not teach the limitations of claim 16, dependent claim 17 is patentable. In response to *Mori* disclosing “a tip that has a cross section that increases from the distal end of the post towards the stop surface,” Applicants reiterate the argument made in response to the Examiner’s rejection of claim 7.

Claim 18

With regard to claim 18, the Examiner asserts that *Mori* discloses the tips being substantially conical in shape.

In regard to *Mori* disclosing tips being substantially conical in shape, Applicants refer the Examiner to Figure 2 of *Mori*, where a substantially rectangular shaped tip is displayed. This rectangular shaped tip of a post is the same tip shown in *Mori*’s Figure 1, however the tip of the post is more visible. This is in contrast with Figures 4 and 5 of Applicants’ drawings and claim 18.

Claims 19 and 20

With regard to claims 19 and 20, it is the Examiner's position that Applicants' alleged admission of prior art discloses a component restraint computer system that is used to secure an electronic component (10) to a circuit board (22), and having a processor and heat sink (12); an output device coupled to the processor comprising: a backing plate (14); a plurality of springs (18); a plurality of posts (20) extending from the backing plate (14) through the circuit board (22) and the springs (18), each post (20) having a stop surface (16); the electronic component (10) and heat sink (12) sandwiched between the circuit board (22) and the springs (18). It is further the Examiner's position that *Mori* discloses a system using a clip (5a, 5b) inserted onto a post (55), being pushed down the post (55) towards a backing plate (24c) until the clip (5a, 5b) engages a stop surface (24a, 24b) of the post (55).

The Examiner states that it would have been obvious to "modify the system of Applicants' alleged admission of prior art by including a clip inserted onto a post, being pushed down the post towards a backing plate until the clip engages a stop surface of the post as taught in *Mori* to improve contact pressure between the parts. The method limitations are deemed inherent."

Once again Applicants respectfully traverse the Examiner's rejection because Applicants' alleged admission of prior art and *Mori* are not combinable. Additionally, even if Applicants' alleged admission of prior art and *Mori* were combined, they would not yield Applicants' invention because *Mori* fails to teach a clip, post, or backing plate.

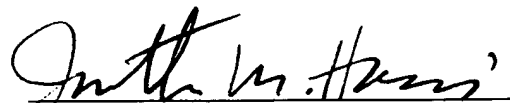
Serial No.: 09/981,511
Filed: October 17, 2002

CONCLUSION

Applicants respectfully request reconsideration and allowance of the pending claims. If the Examiner feels that a telephone conference would expedite the resolution of this case, he is respectfully requested to contact the undersigned.

In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the prior art which have yet to be raised, but which may be raised in the future. If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Conley, Rose & Tayon, P.C. Deposit Account Number 03-2769/1662-46500/JMH.

Respectfully submitted,



Jonathan M. Harris
PTO Reg. No. 44,144
CONLEY, ROSE & TAYON
P.O. Box 3267
Houston, TX 77253-3267
(713) 238-8000 (Phone)
(713) 238-8008 (Fax)

ATTORNEY FOR APPLICANTS